IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with <u>underlining</u> and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claim 8 in accordance with the following:

1.   (previously presented) A system, comprising:

an input source providing a polygonal base mesh having a plurality of arbitrarily sided base faces; and

a computer analyzing the mesh and determining a linear identifier for any existing base face and a newly created face within an existing base face , the identifier comprising a base face identifier, a vertex index and a path to the face, where the identifier of the newly created face is independent of the order of creation of the faces.

2.   (original) A system as recited in claim 1, wherein the identifier further comprises a level indicator indicating a subdivision level of the face.

3.   (original) A system as recited in claim 2, wherein the identifier is stored as a fixed bit integer.

4.   (original) A system as recited in claim 3, wherein said computer disregards leading zeros in the path responsive to the level when accessing the face using the identifier.

5.   (original) A system as recited in claim 1, wherein said computer determines a unique vertex name for a vertex of the face.

6.   (original) A storage as recited in claim 1, wherein said computer determines a unique edge name for an edge of the face.

7.   (previously presented) A system as recited in claim 1, wherein the vertex index identifies a level one subdivision vertex of a zero level subdivision base mesh face corresponding to the face.

8.   (currently amended) A system for providing unique names for faces and vertices in an hierarchical subdivision surface from which each face of a surface, each vertex of a surface and each edge of a surface can be unambiguously identified, said system comprising:

an input source providing a polygonal base mesh having a new face created~~carted~~ by a new vertex; and

a computer analyzing the mesh, determining an identifier for the new face, determining a unique vertex name for the new vertex of the new face, determining a unique edge name for an edge of the new face, with the new face identifier comprising a base face identifier identifying the face surrounding the new vertex, a vertex index and a path to the face, with the vertex index identifying a level one subdivision vertex of a zero level subdivision base mesh face corresponding to the face, with the identifier comprising a level indicator indicating a subdivision level of the face and with the identifier stored as a fixed bit integer.

9.   (previously presented) A method of determining a unique identifier for a new face of a mesh in a subdivision surface created by a new vertex, comprising:

determining a base mesh face surrounding the new vertex;

determining a vertex index of the new face;

determining a path to the new face; and combining the base mesh face, the vertex index and the path as the unique identifier.

10.   (previously presented) A method as recited in claim 9, further comprising determining a subdivision level of the face.

11.   (previously presented) A method of accessing a new face of a mesh in a subdivision surface created by a new vertex, comprising:

obtaining a face identifier including a base face index of a face surrounding the new vertex, a vertex index and a path to the face; and

traversing the path to the face using the base face index and the vertex index.

12.   (original) A method as recited in claim 11, wherein the identifier includes a level and the traversing includes a number of repeated steps which number is responsive to the level.

13.   (previously presented) A computer readable storage having a face name data structure providing a face identifier for a subdivision surface face and controlling access for the face by a computer using the face name data structure relative to a vertex with the face identifier comprising a base face identifier field storing a base face surrounding the vertex, a vertex index field storing a vertex index and a path field storing a path to the surface face.

14.   (original) A storage as recited in claim 13, further comprising a level indicator indicating a subdivision level of the face.

15.   (original) A storage as recited in claim 13, further comprising a unique vertex name for a vertex of the face.

16.   (original) A storage as recited in claim 13, further comprising a unique edge name for an edge of the face.

17.   (previously presented) An apparatus for analyzing a mesh having plural faces each having an arbitrary number of sides, a new vertex and new faces corresponding to the new vertex, the apparatus comprising a computer analyzing the mesh and determining a unique identifier for a first face of the new faces comprising a base face identifier identifying the face surrounding the new vertex, a vertex index on the new first face and a path to the new first face.